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Risk Assessment and Exposure During Application of Parathion in Pear fields

J.Y.Byoun¹, J.K.Moon¹, K.H.Liu², H.M.Lee³, J.B.Lee⁴, H.Choi¹ and J.H.Kim^{1*}

¹*School of Agricultural Biotechnology, Seoul National University San 56-1, Sillim-dong, Gwanak-gu 151-742*

²*College of Medicine, Inje University, Pusan 614-735*

³*Korea Food and Drug Administration, #5 Nokbun-dong, Eunpyung-gu 122-704* ⁴*National Institute of Agricultural Science and Technology, Rural Development Administration, Suwon 441-707*

Dermal and inhalation exposure assessment and risk assessment of applicator were performed with parathion (EC), which is the suspected endocrine disruptors under current use. Patch method was used for the monitoring of the potential dermal, and inhalation exposure was measured using a personal air sampler equipped with a XAD-2 resin.

The dermal and inhalation exposure was not observed for the mixing/loading, During the application using SS(Speed Spray), parathion was exposed to skin by the total amount of 149.8mg, which is 0.14% of total application amount. The major part of exposure was hand, which contains 42% of total exposure. The other exposed parts of body were thigh(24.4%), shin(10.6%) and upper-arms(10.3%). No exposure was observed from the inhalation monitoring.

For risk assessment, the potential dermal exposure (PDE), the absorbable quantity of exposure (AQE) and the margin of safety (MOS) were calculated. MOS was <1, indicating some extent of exposure control are needed. The exposure control need (ECN) was 94.64% and the safe work time (SWT) was 0.21hr (=12.6min).

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